

**Notice of Allowability**

Application No.

10/534,879

Applicant(s)

SANDNER ET AL.

Examiner

Art Unit

Marc S. Zimmer

1712

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/12/05.
2. ☒ The allowed claim(s) is/are 1-3.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 05/12/05,08/12/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

***Allowable Subject Matter***

Applicant claims a composition comprising as an essential component a polysiloxane having very specific structural attributes. In particular, the polysiloxane contains both aminoalkyl substituents and endgroups having residues derived from a diaza heterocycle, of which piperazine would be exemplary, or a triamine having two tertiary amine moieties (N,N,N',N'',N''-pentamethyl dipropylenetriamine for instance). A residue derived from the ring-opening of either a glycidyoxypropyl terminal group or a epoxycyclohexylethyl bridges a nitrogen atom of the diaza heterocycle/triamine and the terminal silicon atoms of the polymer. Finally, the nitrogen atoms of the endgroups are quaternized whereas those of the pendent amine groups are not.

In the prior art, there are a number of references that disclose the employment of piperazine or a similarly-constituted triamine as a chain extender for the preparation of siloxane homo- and copolymers. See, for example, column 3, lines 46-43 of Czech et al., U.S. patent # 5,807,956 where it is contemplated that a polysiloxane-polyether block copolymer bearing glycidyl moieties at its end may be chain extended with piperazine. This reference fails to even render obvious the claims at least for the reason that the claimed polymer does not embrace those having polyether blocks, the nitrogen atoms of the piperazine are apparently not quaternized, and there are no pendent amine groups. Lange et al., U.S. patent Application Publication No. 2004/0048996 discloses the preparation of polysiloxane-polyoxyalkylene blocks copolymers wherein the blocks are joined via a divalent residue containing ammonium groups. Among the compounds mentioned to provide the aforementioned ammonium residues are N,N,N',N'',N''-

pentamethyl dipropylenetriamine and N-methylpiperazine (paragraphs 169 and 170). Polymers exemplary of that disclosure have all of the shortcomings as a foundation for anticipation as did those taught by *Czech*.

Ryang, U.S. patent # 4,892,918, describes polysiloxane compounds (column 2) having piperazine endgroups attached to the terminal silicon atoms indirectly through a moiety obviously derived from the ring opening of a glycidyl group but the nitrogen atoms of the heterocycle are not quaternized nor are there present any pendent amine groups.

There are, in addition to these disclosures, documents that teach polysiloxanes having partial quaternization of the amine groups, documents teaching amine groups at both the terminal positions and pendent positions alike (though not necessarily amine groups resembling those depicted in the claims), etc. Ultimately, there was no one reference that taught a polymer having simultaneously all of the attributes recited *supra* nor did the prior art motivate one of ordinary skill to modify those polymers that shared at least some attributes with the claimed polymer to arrive at a structurally equivalent polysiloxane. For at least this reason, claims 1-3 are deemed allowable.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 30, 2007

  
MARC S. ZIMMER  
PRIMARY EXAMINER